SIMULATION BASED ACQUISITION (SBA)

Defense Systems Affordability Council (DSAC)

- Affordability Strategy/Goals
  - Field high quality defense products quickly; support them responsively
  - Lower the total ownership cost of defense products
  - Reduce the overhead cost of acquisition & logistics infrastructure

Initiatives Supporting DSAC Goals

- Systems Engineering Steering Group (SESG) has identified four initiatives that have significant potential impact on the DSAC goals.
  - Open Systems
  - Performance Based Business Environment (PBBE)
  - Integrated Product & Process Development (IPPD)
  - Simulation Based Acquisition (SBA)

What is SBA?

- SBA is a corporate level strategy to exploit M&S and information technologies. It revolutionize the defense systems acquisition process.
- The strategy integrates the requirements, acquisition, and training communities.
- Use of **modeling and simulation (M&S)** within and throughout the systems engineering process will become essential both to the development of new systems and the update of existing systems

Essential Aspects Of SBA

- SBA will, through early and continuous involvement, allow the user to define, refine, and balance requirements. This is the critical first step in producing better, faster, and cheaper material solutions.
- An SBA process supported by the synthetic environment, allows design teams to concurrently explore greater numbers of possible material solutions than is possible within the current acquisition process.

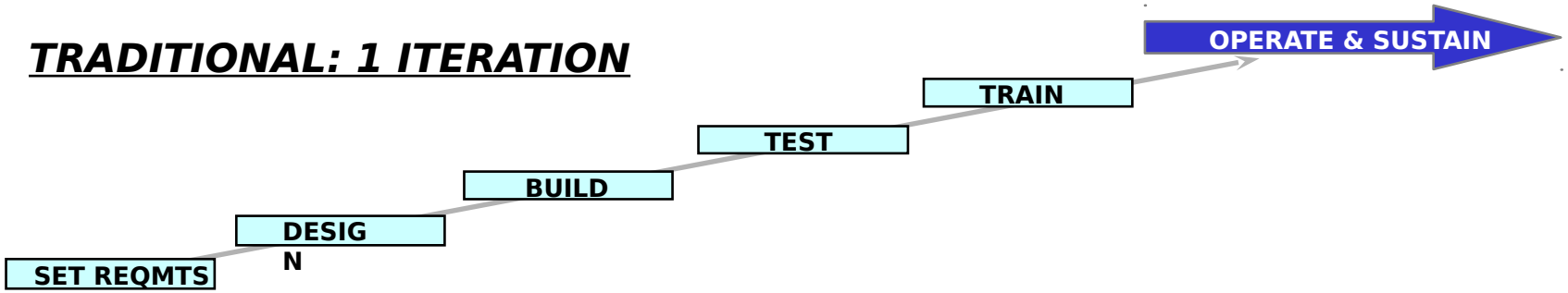
Simulation Based Acquisition: A New Approach (Report of the 1997-1998 DSMC Military Research Fellows)
http://www.dsmc.dsm.mil.pubs/

Essential Aspects Of SBA
(continued)

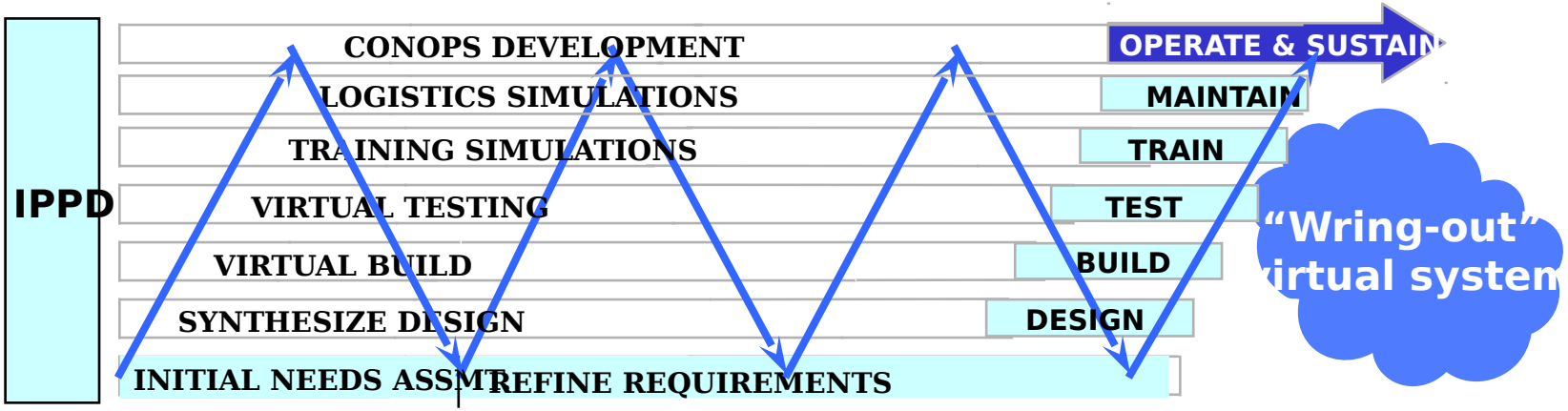
- The iterative nature of the SBA design process will enable IPPD teams to converge systematically on optimal solutions more efficiently than is currently possible.
- SBA will support changing the role of testing into that of being an integral part of the design process.
- SBA supports informed tradeoff analyses through a Decision Risk Analysis process.

Process

TRADITIONAL: 1 ITERATION



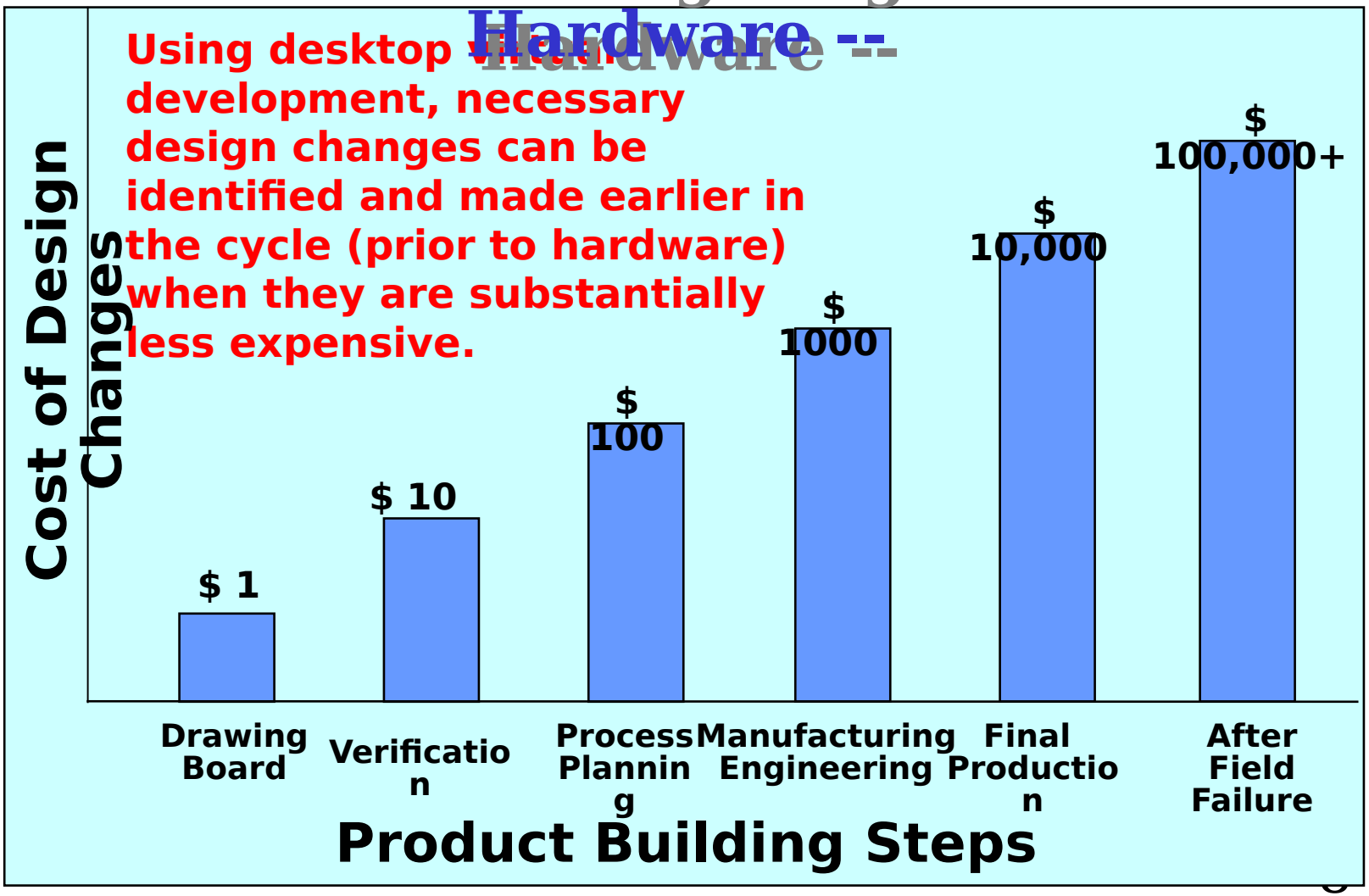
SBA - MULTIPLE ITERATIONS (MULTIPLE DESIGN LEARNING CYCLES)



Complete understanding across all functions prior to locking requirements, designs and processes.

AVOID COSTLY MISTAKES

-- Get the Design Right Before Hardware --



M & S Courses & Further Info

- Courses being evaluated
  - M&S module in SYS 301 will be enhanced
  - M&S Orientation CD, Three hours
  - M&S 101 Tutorial (4 hours)
    http://www.education.dmso.mil/ms101.htm
  - M & S Staff Officers' Course (5 days)
    http://www.education.dmso.mil/mssoc.asp
- SBA special interest area

  http://www.msosa.dmso.mil/sba/
- M&S Effectiveness Study
  http:///www.acq.osd.mil/te/pubdocs.html

Simulation-Based Acquisition (Systems Level)

- DCMC Engineering Role
  - Be familiar with various program office and contractor modeling systems
  - Ensure the problem is defined and requirements known before a model or simulation is used
  - Ensure the model or simulation is verified/validated
  - Ensure the model or simulation solves the defined problem and takes into account any impact to collateral areas